Appendix C – Pre-Treatment Checklist
Spruce Beetle Epidemic and Aspen Decline Management Response

Contents

Treatment Name: _____

Treatment Location: _____

District: _____

Planning Steps

1. CONSULT THE FEIS/ROD FOR DIRECTION ON TREATMENT PRIORITIES, DESIGN FEATURES, AND OTHER PARAMETERS.

Instructions: The direction in the FEIS/ROD reflects comprehensive public participation and collaborative efforts conducted over a three-year planning period. The public had opportunities to influence all elements of these documents. Becoming familiar with the implementation parameters of the FEIS/ROD to develop an understanding of these limits and requirements will help the Interdisciplinary Team identify treatment units within Priority Treatment Areas (PTA). Ensure proposed treatments accomplish Purpose and Need as outlined below.

SBEADMR Purpose and Need:

- -Improve public safety by removing hazard trees in higher use areas (roads, rec sites, etc.)
- -Improve public safety by reducing fuels and future fire behavior in WUI and near other infrastructure values
- -Improve future fire management opportunities (protection of values, suppression, managed fire, and prescribed burning) on the larger landscape
- -Enhance resiliency of spruce and aspen on the landscape by re-establishing desired forest conditions (species and age-class diversity)
- -Recover value of dead and dying spruce on the landscape through salvage

2. IDENTIFY AND CHARACTERIZE THE LANDSCAPE PROPOSED FOR TREATMENT.

Instructions: The priority treatment areas (PTAs) will form the bounds for out-year SBEADMR treatments that become part of the normal Forest Service program of work, including the 5-year timber sale, fuels management, and wildlife habitat programs. Within these bigger PTA however, there will be a need to identify specific treatment landscapes/units that at are the appropriate scale for more detailed treatment planning. The Interdisciplinary Team will characterize current vegetative conditions in the selected landscape/units as compared to desired conditions. The Potential Natural Vegetation

(PNV) used in the SBEADMR analysis can be used to describe current versus desired (reference) conditions but other more site-specific data can also be used. This characterization is **NOT** an intensive or extensive exercise and should be based on existing data sets (e.g. FSVEG spatial, findings from the most recent Management Review- see Step 12 of the Adaptive Implementation Process, or other pertinent information). The silviculturlist on the team in cooperation with biologist and fire management officer will determine if a viable project(s) existing in the landscape/watershed selected. Other factors to consider when selecting a treatment landscape/watershed include:

- Ecology – based upon best available information, where have spruce and aspen ecology changed most over time due to human and natural disturbances? Where have these changes affected the range of conditions expected and the ability to achieve management objectives?
- Time since mortality - Engelmann spruce typically die within a year of beetle infestation. Once dead, trees remain merchantable for about 3-5 years. Furthermore, the fire risk changes over time since mortality. Highest priority recovery (salvage) would be those experiencing recent mortality.
- Climate change projections – Aspen and spruce habitats have been classified into Lost, Threatened, Persistent, and Emergent categories, based on changes anticipated by the 2060 (Rehfeldt, G.E., et al. 2015).
- Existing transportation system – areas having an existing transportation system adequate to facilitate removal and hauling of logs would be a priority for commercial harvest. Construction of new roads is costly and results in increased environmental impacts.
- Economic viability of treatments – Takes into account haul distances, layout costs, miles and type of roads needing to be constructed, and timber volume per acre.
- Site productivity – areas with the best tree growth. These sites have the highest tree volume per acre and the greatest potential for regeneration and/or tree planting success.
- Achievement of multiple resource management objectives – watersheds where resource management objectives for wildlife, watershed, fire and timber can be achieved.

***Stakeholder Opportunities*:**

- The forest will share information on the details of proposed treatment units as they become available, thereby enabling the collaborative workgroup (Adaptive Management Group) and all stakeholders the opportunity to learn about implementation activities prior to the subsequent steps. Updated information will be posted on the forest website.
- **Conduct off-season workshop with stakeholders and science team (Step 3 of the Adaptive Implementation Process).** Each year a winter or spring workshop will be held with stakeholders, treatment implementation team, and forest leadership team members to discuss implementation program. The ID Team will provide a brief description of the landscape/units targeted for treatment, how they deviate from desired condition and other

factors making the area priority for treatment (Purpose and Need for the treatment). The Supervisors Office will coordinate the annual meeting.

3. COMPLETE AREA SURVEYS AND INVENTORIES

Introduction - This section identifies surveys or on-the-ground reviews required by law, regulation or policy, as well as some which are optional which the Treatment ID team may elect to implement for each individual treatment. These data will be used to develop project-specific treatments areas, areas that should be avoided (e.g. cultural sites, sensitive wildlife areas, etc.) and helps establish project specific objectives and desired outcomes. Information derived from the surveys may also precipitate monitoring questions that should be considered by the ID Team. Examples for some program areas are provided.

Some specialties below have specific instructions which must be followed in order to maintain a level of effects which is documented in the accompanying EIS.

☐Air Quality

☐ If needed, obtain State of Colorado air quality (smoke) permits (AQ-1).

☐Cultural Resources

Instructions:

National Historic Preservation Act (NHPA) compliance will be completed prior to treatment implementation. All cultural resources that are eligible for the National Register of Historic Places or are unevaluated within a treatment area will be avoided unless the Heritage specialist determines a specific treatment does not have the potential to affect certain types of cultural resources.

Any changes to treatment areas or road construction during implementation will require a separate review under the National Historic Preservation Act.

The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the Forest Archaeologist notified immediately. The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the Forest Supervisor, as well as the appropriate Native American group(s)and State Historic Preservation Officer (SHPO).

Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act (ARPA).

☐ National Historic Preservation Act (NHPA) compliance will be completed for each treatment area prior to treatment implementation. This may include literature reviews, field surveys (if deemed necessary by the Heritage specialist) and completion of SHPO and tribal consultation. Surveys, reporting, and consultation may be conducted in accordance with a Programmatic Agreement. SHPO and tribal consultation may result in additional cultural resource avoidance or protection measures.

☐ Identify cultural sites to be avoided on the ground
☐ Roads and landings
☐ Pile Burning

District Archeologist Signature _____

☐Fire/Fuel Surveys

Instructions: NA

☐ Browns transects/photo points

☐ Silvicultural prescription

☐ Other surveys (specify)

☐ Determine minimum and maximum fuel loading associated with harvests and treatments; particularly important to consider are residual fuel loadings near WUI and other values (<4' surface flame length required) and those associated with roadside hazard tree removal (roads may be used as future control lines and fuel loadings from hazard tree removal should be mitigated so as to not significantly increase surface fuel loadings)

Fire/Fuels Specialist Signature _____

☐Land Survey

Instructions:

Prior to commencing any ground- or vegetation-disturbing activities, evidence of the PLSS (Public Land Survey System) will be marked for protection. The Forest Land Surveyor shall be

consulted to assist with providing data, searching for and evaluating evidence, and locating and protecting monuments of the PLSS from destruction.

☐ Forest Land Survey contact and survey has been completed.

☐ Proposed treatments within 300 feet of wilderness, locate boundaries..

Forest Land Surveyor Signature _____

☐Range and Invasive Species Surveys

Instructions:

Based on survey of invasive weeds in the treatment area, prioritize weed infestations for treatment in high-risk sites, including project operating areas and along access routes. Control weeds as necessary prior to treatment implementation. Modify project as needed to reduce expansion of invasive weeds.

Include identified range improvements, range transects and witness trees and posts in the timber contract, service contract, or burn plan as features to be protected from disturbance during treatment activities.

☐ Pre-treatment invasive plant species surveys within and adjacent to treatment areas and access roads. Inventories will occur during the proper time of year for detection, and will occur in sufficient timing to conduct necessary pre-implementation treatments.

☐ Identify and map range improvements that could be affected by treatment activities.

☐ Range transects and witness trees and posts will be identified prior to treatments.

Range Management Specialist Signature _____

☐Recreation

Instructions:

The Recreation Specialist will work with the team and the proposed treatments to inventory the recreation attributes that may be affected by treatments. The type of treatment and the location can affect recreation activities and the quality of the recreation experience in the near term and over the long term.

Evaluate how the project will affect the recreation facilities and settings in the project area. Using the design features, ensure that the recreation opportunities are managed appropriately for the period of project implementation and for the long term. Design implementation to minimize the impact on recreation users to the extent feasible, including having good communication with partners and the public about the impacts of the activities.

Ski Areas

☐ Consult with ski area permit administrator, ski area, ski area snow-consultants about treatment plans and designs.

Developed Recreation Sites

☐ Consult with District Ranger to identify priority developed recreation sites for treatment and other any other developed sites affected by treatment activities.
☐ Consult with District Ranger to determine if sites are managed by Forest Service or under permit with a concessionaire.

Dispersed Recreation Sites

☐ Consult with District Ranger to identify dispersed recreation sites that need to be treated or those that need to have a higher degree of clean-up than other general forest areas.

Trails

☐ Consult with District Ranger to identify the location of any National Forest System Trail (NFST) to be impacted by treatment activities.
☐ Additionally, identify designated National Scenic, Historic or Recreation Trails including existing routes and areas where potential re-routes may be implemented..
☐ Identify managed snow trails.
☐ Identify the types of uses and predominance along all trails.

Recreation Special Uses

☐ Consult with District Ranger to identify the location of any authorized recreation special uses that would be impacted by treatment activities. Identify the types of uses that would be affected.

Scenic Byways

☐ Consult with District Ranger to identify the location of Forest, State or National Scenic Byways.

Recreation Specialist Signature _____

☐Sensitive Plant Surveys

Instructions:

Ten sensitive species were identified in the FEIS that could potentially occur within PTA. They have been grouped into four habitat types. If suitable habitat is found in project and there is chance habitats could be disturbed, conduct field survey to determine if individuals or populations occur. The following are key habitat types to look for along with associated species. These species can also occur within microsites intermixed or on edge of these habitat types.

Habitat*	Sensitive Species
Montane parks and alpine	*Machaeranthera coloradoensis*
Moist swales and riparian meadows	*Astragalus leptaleus*
Fens and other wetlands	*Carex diandra* *Drosera rotundifolia* *Eriophorum chamissonis* *Eriophorum gracile* *Salix candida* *Sphagnum angustifolium* *Utricularia minor*
Lightly-disturbed microsites (old roads and road cuts) within or close to mesic coniferous stands	*Botrychium paradoxum*

*refer to Biological Assessment and Biological Evaluation for Plants for more detailed habitat description (section Sensitive Species on the GMUG by Habitat)

☐ If a sensitive species is found, the area will be flagged and avoided.

☐ All water influence zones (WIZ) delineated, flagged and avoided.

☐ Treatments conducted within the Crested Butte treatment area (Gunnison Basin North) occur in close proximity (40-100 ft.) from treatment boundary to known locations of *Botryichum paradoxum*. Detailed searches for this species must be conducted prior to treatments near these locations.

☐ Treatments conducted within the Cochetopa treatment area (Gunnison Basin South) occur in close proximity to many known locations of *Machaeranthera coloradoensis*. Detailed searches for this species must be conducted prior to treatments near these treatment locations.

☐ Treatments conducted within the Kannah Creek, Cottonwood Lakes, East Fork Big Creek treatment area (Grand Mesa) occur within, on edge or in close proximity to many known locations of *Utricularia minor*. Detailed searches for this species must be conducted prior to treatments near these locations.

Botanist/Ecologist Signature _____

☐Soil and Water Surveys

Instructions:

For cumulative effects tracking, evaluate level of existing disturbance, reasonably foreseeable project disturbance, plus proposed treatment disturbance using the Equivalent Roaded Acres (ERA) procedure to determine potential for impacts to WIZs, and soil erosion, compaction, and productivity (See FEIS Watershed Section).

Modify treatment as needed to avoid increasing impairment of watershed conditions. Calculate proposed acres of disturbance due to mechanical harvest and roads at the HUC12 level. Maintain disturbance acres from mechanical harvest and roads at less than 25 percent of HUC12 area.

Create map products of WIZ buffers and sensitive soils (if needed) for use in the timber sale contract package.

☐ All fens, wetlands, and water influence zones (WIZ) delineated, flagged, and avoided.

☐ Sensitive soil types, i.e. severe erosion hazard rating, slopes greater than 40 percent, landslide prone areas identified.

☐ Detrimental soil disturbance surveys completed.

☐ Proposed road locations evaluated for number and locations of stream crossings, length within WIZs, and the potential for impacts to the hydrology of groundwater dependent ecosystems

Soil & Water Specialist Signature _____

☐Timber Surveys

Instructions:

Use the results of the stand exams and insect and disease surveys to determine the existing conditions of the stands and the feasibility of mechanical vegetation treatment. Compare the existing conditions to the desired condition found in the prescription matrix (Appendix A) and determine the departure from desired condition to develop a range of treatment options. Present the range of treatment options to the interdisciplinary team to develop a treatment alternative that will have a positive trend towards integrated resource indicators.

☐ Stand Exams

☐ Insect and Disease Surveys

☐ Operational Feasibility and Access

☐ Silvicultural prescription and marking guides

☐ Other surveys/information (specify)

TMA Signature _____

☐Transportation Planning Surveys

Instructions:

Evaluate and select the applicable design features for transportation systems and haul routes, in order to keep effects to existing routes and effects from new routes within the bounds disclosed within the FEIS that supports the Record of Decision for this project.

If treatment requires use of roads beyond Forest Service jurisdiction, approval and authorization is completed via additional NEPA.

☐ Existing road to be used in the sale – Road log

☐ New specified road construction – flag-line with survey

☐ Final Road Design

☐ Other surveys (specify)

Engineering Signature _____

☐Visual Resources Surveys

Instructions:

Evaluate and select the applicable design features for visual resources such that the treatment area's identified visual quality objectives are achieved consistent with the Forest Plan.

☐ Identify valued scenic resources

☐ Identify sensitivity level of scenery

☐ Identify treatment area's visual quality objectives, per Forest Plan guidance

☐ Determine the appropriate Visual Quality Objective for the landscape proposed for treatment and plan in accordance with SRV-1 thru SRV-6.

☐Wildlife and Fish Surveys

Instructions:

Complete surveys required by policy, regulation or law. The aforementioned list is not exhaustive nor does it apply to every project area. The District biologist will have to determine what surveys need to be conducted on any given treatment landscape. While completing ground reconnaissance, look for opportunities to achieve multiple resource management objectives. Examples could include but are not limited to closure of existing roads if used by the purchaser during operations, resiliency treatments in spruce-fir, stands affected by Sudden Aspen Decline (SAD) lacking understory regeneration.

☐ If needed, coordinate with CPW to identify areas important to various wildlife species (elk calving areas, security areas, etc.) for avoidance and/or application of special management considerations. Typically special management considerations would be in the form of design features.

☐ Northern goshawk/forest raptor surveys

☐ Conduct old growth inventories if high percentage of treatment area is live.

☐ Dense horizontal cover surveys (Canada lynx)

☐ Field verification of GIS mapped lynx habitat

☐ Snow tracking surveys primarily for timber sale areas

☐ Neo-tropical migratory bird monitoring – point count surveys consistent with the Rocky Mountain Bird Observatory (primarily in areas on the Forest where RMBO data is lacking information on species densities and population trends at the Forest-scale, such as Brewer's sparrow and red-naped sapsucker; otherwise we just use their existing data and do not conduct new surveys)

☐ Document nest sites for MIS and Sensitive primary and secondary cavity nesters, if needed

☐ Confirm presence of American marten in project areas using bait stations with soot track plates and remote cameras

☐ Gunnison sage-grouse presence/absence surveys (look for pellets, direct observations); collect vegetation data to determine habitat suitability for sage-grouse based on Range wide Conservation Plan habitat guidelines.

☐ Conduct photo-point monitoring of prescribed burn areas by establishing pre-treatment photo points, and repeating the photos post-treatment.

☐ During project planning coordinate with other resources as needed.

☐ Other species (specify)

District Biologist Signature _____

4. DRAFT REFINED TREATMENT PLAN AND FOREST PLAN COMPLIANCE

Instructions:

Prepare refined treatment plans and implementation instructions, unit layout guidance, road work, and monitoring requirements, including selection of applicable design features. Applicable design features identified during this phase of planning will be carried forward into the final design plan (timber sale contract, service contract or burn plan). At a minimum, design features to ensure compliance with Forest Plan or legal requirements should be selected. In most cases, design features will be selected from the menu provided in Appendix B of the EIS. If a design feature is modified, provide rationale why it is equivalent of better protection to the resource. Recommended modifications to these Features must be submitted to the Forest Leadership Team through the Management Review Process (see Appendix E).

It is assumed that sign-off by the staff specialists and approval of the line officer indicates that the treatment as designed with appropriate use of design features fulfills Forest Plan and other legal requirements. If this certification cannot occur, the treatment should be modified to ensure compliance is achieved.

All of the following design features and requirements will be followed in the implementation of this project.

☐ **Cultural**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

District Archeologist signature _____

☐ **Fire/Fuels**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Fire Specialist signature _____

☐ **Land Survey**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Lands Specialist Signature _____

☐ **Range and Invasive Plant Species**

Applicable Design Features (list):

A.
B.

C.

Rationale if design feature modified:

Range Management Specialist Signature _____

☐ **Recreation**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Recreation Specialist Signature _____

☐ **Sensitive Plants**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Botanist/ecologist Signature _____

☐ **Soil and Water**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Soil and Water Specialist signature _____

☐ **Timber - Treatment Units and Silvicultural Prescriptions Complete**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

TMA Signature _____

☐ **Transportation Planning**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

Engineer signature _____

☐ **Visual Quality & Scenic Resources**

Applicable Design Features (list):

A.
B.

Rationale if design feature modified:

District Recreation Planner signature _____

☐ **Wildlife and Fish**

Applicable Design Features (list):

A.
B.
C.

Rationale if design feature modified:

District Biologist signature _____

Forest Fish Biologist signature _____

Stakeholder Opportunities:

A. Detailed treatment plans will be posted on the forest website and available for public review as part of Step 6.
B. Forest implementation team will assist the Adaptive Management Group and other stakeholders in interpreting detailed plans.
C. Publish notice of opportunity to comment on updated treatment list, treatment plans, refined maps, and schedule (See Step 6 of Appendix E – Adaptive Implementation Process).
D. The review and comment period will run for 30 days. Comments will be considered by the implementation teams and responsible official and used to adjust treatment plans as warranted.

5. CONDUCT PUBLIC FIELD TRIP OF PROPOSED TREATMENT AREA

Instructions:

Complete public field trip of select sample of treatment areas. It is anticipated that each of the three timber/fire zones (Grand Valley-Paonia, Norwood-Ouray and Gunnison) may conduct between 1-3 trips per field season, depending on public interest. Field review will focus on pre-treatment areas; however post-treatment and monitoring activities will likely be viewed on the same trip (See Step 7 of Appendix E - Adaptive Implementation Process). Document attendees and comments/recommendations provided.

6. IDENTIFICATION OF TREATMENT- SPECIFIC MONITORING

Instructions:

This section describes treatment-specific monitoring that may be needed. This monitoring is in addition to the annual reviews described in Appendix D. Those already listed are considered mandatory. Any additional monitoring is at the discretion of the Line Officer.

☐ **Cultural**

Specified monitoring:

A. ☐ For treatments where field inventories are not feasible due to visibility concerns prior to treatment implementation, monitoring in the form of a sample inventory for cultural resources will be required post implementation. This monitoring will take place within one year of treatment implementation, with results provided to SHPO (Per 2015 Prescribed Fire Programmatic Agreement w/SHPO).
B. ☐ Cultural resource sites that were required to be avoided during treatment implementation will be monitored for effectiveness of the protection measures following treatment completion (Per 2015 Prescribed Fire Programmatic Agreement w/SHPO).

☐ **Fire and Fuels**

Specified monitoring:

A. ☐ Post-Treatment Fuel Loading Surveys in WUI and/or around infrastructure values
B. ☐ Monitor a sample of pile burn scars for bare soil and on scars - located on slopes and in swales-for the presence of rills, gullying, or soil movement. If >100 sq. ft. of burn scar consisting of bare soil; minor rilling or gullying present within or adjacent to burn scar; minor deposition of soil downslope of scar, treatment bare soil and erosion according to District protocols, which may include one or two of the following: addition of mulching, scarification, inoculation with adjacent soils, seeding, etc. If monitoring reveals >200 sq. ft. of burn scar consisting of bare soil; multiple rills, or gullying, or gullying 2-3" deep within burn scar; significant deposition of soil downslope of scar, elevate treatment application. **(A decision-making trigger identified in Chapter 2).**

☐ **Range & Invasive Species**

Specified monitoring:

A. ☐ Pre-treatment invasive plant species surveys:

Within high risk areas for invasive plant species, complete inventories to identify invasive plant populations. Treat and document at least 50% efficacy rate prior to treatment and/or road-building.

B. ☐ Post-treatment invasive plant species surveys:

Inspect and document all limited term ground-disturbing operations in infested areas for at least three (3) growing seasons following completion of the project.

For on-going projects, continue to monitor until reasonable certainty is obtained that no new infestations have occurred. Provide for follow-up treatments based on inspection results.

☐ **Soil, Water Air**

Specified monitoring:

A.
B.

☐ **Transportation**

Specified monitoring:

A. ☐ All constructed roads in treatment area will be obliterated within 5-years of sale closure (WQSP-8). Complete monitoring to ensure this has been completed and report in appropriate database of record.
B.
C.

☐ **Wildlife, Fish and Rare Plants**

Specified monitoring:

A.
B.
C.

☐ **Silviculture**

Specified monitoring:

A. Complete stocking surveys in order to certify treatment unit fully stocked. This includes species composition and age class as required by National Forest Management Act (NFMA).
B.
C.

☐ **Other (specify)_____**

Specified monitoring:

A.
B.
C.

7. FINALIZE TREATMENT PLAN – TIMBER SALE CONTRACT, SERVICE CONTRACT OR BURN PLAN

Instructions:

The GMUG implementation team will finalize treatment plan and ensure all aspects of this checklist has been completed and approved by the line officer. Ensure contracts, agreements, burn plans, or other implementation instruments are reflective of this framework.

***Stakeholder Opportunities*:**

Final documents will reflect public participation in previous steps and will be available for public review by placing them on the GMUG Public website.

8. CONTRACT REVIEW

TMA and Contracting Officer complete a review of the contract package to ensure specified design criteria are identified within various contract C provisions.

Signature _____

Contracting Officer Date

9. DISTRICT RANGER APPROVAL

Signature _____

District Ranger Date

Literature Cited

Rehfeldt, G.E. J.Worrall, S.B. Machetti, N.L. Crookston, 2015. Adapting forest management to climate change using bio-climate models. Forestry 2015: 0, 1-12, doi:10.1093/forestry/cpv019.

USDA Forest Service. 2015. Hazardous fuels and tree reduction Program and Management of Cultural Resource Programs within hazard tree environments.